



# COUNTY OF SAN DIEGO BOARD OF SUPERVISORS

1600 PACIFIC HIGHWAY, ROOM 335, SAN DIEGO, CALIFORNIA 92101-2470

## AGENDA ITEM

**DATE:** October 20, 2021

**TO:** Board of Supervisors

### SUBJECT

**ADVOCATING FOR RENEWABLE ENERGY RESOURCES (DISTRICTS: ALL)**

### OVERVIEW

On July 14, 2021 (3), the Board received an update on the Regional Decarbonization Framework, including the plan for regional collaboration and stakeholder outreach. The framework focuses on a three-point approach: zero emissions of carbon dioxide, reduction of super-pollutants, and reduction of ground level ozone. It will also address environmental goals and impacts on environmental justice communities, in terms of housing, air quality, jobs, and infrastructure. Exploring other types of renewable resources, such as wave energy, offshore wind farms, and geothermal energy, will aid in the goals of the Regional Decarbonization Framework.

There are many opportunities to coordinate with outside sources to research the possibilities for renewable energy projects throughout the San Diego region, including water resources such as the Pacific Ocean, to reduce carbon emissions. Renewable energy technology—including wave capture and off-shore wind turbines—is evolving rapidly, and the Pacific Ocean could be used to meet our goal to decarbonize the region. Although the County of San Diego does not have direct control over the use of the Pacific Ocean, bold measures in collaboration with our regional partners are necessary to meet decarbonization goals. Ocean surface waves contain tremendous energy, and capture and transport of that energy has vast potential to decarbonize our regional energy supply. Examples of where wave energy is being piloted are off the shores of Oregon and right here in San Diego (off Scripps Pier in La Jolla). Another renewable source could come from geothermal energy. According to the California Energy Commission, “due to its location on the Pacific's ‘ring of fire’ and because of tectonic plate conjunctions, California contains the largest amount of geothermal electric generation capacity in the United States”.<sup>1</sup>

Today’s action, to aid in the Regional Decarbonization Framework effort, is to direct County staff to coordinate with local universities and research institutions and with other federal, State, and

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<sup>1</sup> “California Energy Commission.” *California Geothermal Energy Statistics and Data*, [https://ww2.energy.ca.gov/almanac/renewables\\_data/geothermal/index\\_cms.php](https://ww2.energy.ca.gov/almanac/renewables_data/geothermal/index_cms.php).

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local entities—including but not limited to the U.S. Department of Defense, U.S. Department of Energy, California Coastal Commission, California Energy Commission, and the Port of San Diego, and other stakeholders to research the feasibility of other alternative forms of renewable energy, such as but not limited to, wave energy, offshore wind farms, and geothermal energy, toward reducing carbon emissions.

**RECOMMENDATION(S)**

**SUPERVISOR JOEL ANDERSON AND CHAIR NATHAN FLETCHER**

1. Find that the proposed actions are statutorily exempt from environmental review per Section 15262 of the California Environmental Quality Act (CEQA) Guidelines because requesting additional research on renewable energy source involves only feasibility or planning studies for possible future actions that the Board of Supervisors has not approved, adopted, or funded. Environmental factors are to be considered in the research.
2. As part of the Regional Decarbonization Framework, direct County staff to coordinate with local universities and research institutions, and with other federal, State, and local entities, including but not limited to the U.S. Department of Defense, U.S. Department of Energy, California Coastal Commission, California Energy Commission, and the Port of San Diego and other stakeholders, to research the feasibility of other alternative forms of renewable energy, such as but not limited to, wave energy, offshore wind farms, and geothermal energy toward reducing carbon emissions. County staff are to include any findings in future updates on the Regional Decarbonization Framework when providing an update to the Board.

**EQUITY IMPACT STATEMENT**

The Regional Decarbonization Framework is centered on equity. It is being prepared in coordination with the Office of Equity and Racial Justice, Office of Environmental and Climate Justice, and stakeholders that have been historically marginalized in regional conversations. This includes nonprofit advocates and coalitions active in environmental justice communities. The framework will intentionally address the gaps that exist between the decarbonization goals and existing realities for environmental justice communities, in terms of air quality, infrastructure, jobs and housing. Exploring renewable energy projects can potentially mitigate the impacts of climate change and other environmental harms in communities of concern.

Local renewable energy production can also drive increased investment in green jobs and developing a zero carbon economy. Research, planning, construction, deployment, and maintenance of new renewable energy projects can help bolster workforce development and the creation of high-road jobs.

**FISCAL IMPACT**

Funds for the initial University of San Diego (UCSD) School of Global Policy and Strategy contract for the development of the Regional Decarbonization Framework are included in the Fiscal Year 2021-22 Operational Plan for the Land Use and Environment Group Executive Office. This action could require additional staff hours, contract capacity and funding. If additional costs are identified, they will be included in a future update to the Board on the Regional Decarbonization Framework.

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**BUSINESS IMPACT STATEMENT**

The proposed actions will help businesses and workers in San Diego County through the advancement of technological innovation, economic resiliency, investment opportunities, renewable energy projects and high-quality job creation in the green economy.

**ADVISORY BOARD STATEMENT**

N/A

**BACKGROUND**

On January 27, 2021, the County of San Diego Board of Supervisors approved the development of a Framework for a regional zero-carbon sustainability plan in partnership with the UC San Diego School of Global Policy and Strategy and the University of San Diego (USD) Energy Policy Initiatives Center.

On July 14, 2021 (3), the Board received an update on the Regional Decarbonization Framework, including the plan for regional collaboration and stakeholder outreach. The Decarbonization Framework outreach process provides opportunities to coordinate with outside sources to research the possibilities for renewable energy projects throughout the San Diego region including ocean resources such as the Pacific Ocean, to reduce carbon emissions. CalWave partnered with the University of California San Diego, Scripps Institution of Oceanography (SIO), the U.S. Department of Energy, Pacific Northwest, Sandia National Laboratories, National Renewable Energy Laboratory, as well as University of California Berkeley, and are currently conducting an ocean pilot of scaled wave energy converter off Scripps pier. According to CalWave, wave energy is more abundant and stable compared to solar or wind energy and ocean technology produces less emissions. Ocean waves can produce energy at all times of the year and at all times of the day.<sup>2</sup> Oregon State University set out in June of 2021 to begin construction on a wave energy testing facility off the coast of Newport, Oregon. Oregon State University said, “the facility will offer wave energy developers the opportunity to try different technologies for harnessing the power of ocean waves and transmitting energy to the local electrical grid.”<sup>3</sup>

Excitingly, wave energy is not the only opportunity in the Pacific Ocean. An analysis conducted in late 2016 by the National Renewable Energy Laboratory looked at the coastline of California and estimated the potential for offshore wind energy is enough to produce about 1.5 times of the state’s energy consumption, based on 2014 numbers.<sup>4</sup> Offshore wind development opens new

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<sup>2</sup> “Scripps Technical Forum - CalWave - Updates on Open Ocean Pilot of a Wave Energy Converter off SIO Research Pier Q3/21.” *Scripps Institution of Oceanography*, scripps.ucsd.edu/events/scripps-technical-forum-calwave-updates-open-ocean-pilot-wave-energy-converter-sio-research.

<sup>3</sup> Klampe, Michelle. “Construction Set to Begin This Month on Oregon State’s Wave Energy Testing Facility.” *Life at OSU*, 1 June 2021, today.oregonstate.edu/news/construction-set-begin-month-oregon-state%E2%80%99s-wave-energy-testing-facility.

<sup>4</sup> Musial, Walter, Philipp Beiter, Suzanne Tegen, and Aaron Smith. Potential Offshore Wind Energy Areas in California: An Assessment of Locations, Technology, and Costs. National Renewable Energy Laboratory, Bureau of Ocean Energy Management. December 2016. <https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Studies/Pacific-Region/Studies/BOEM-2016-074.pdf>

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opportunities for accessing stronger winds, building larger-scale projects, creating domestic jobs, and revitalizing ports. In addition, Assembly Bill (AB) 525 of 2021, authored by Assemblymember David Chiu, sets a state goal of producing 10 gigawatts of offshore wind energy by 2040 and directs state agencies to work on approving the construction of offshore wind infrastructure. AB 525 was signed into law on September 23, 2021. Wind farms have been developed in seas around the world – off Scotland, China, and Rhode Island. According to California’s SB 100 Joint Agency Report, at least 10 gigawatts of offshore wind capacity will be needed to meet California’s 100% by 2045 clean energy target.<sup>5</sup>

According to National Public Radio (NPR), “The Biden administration plans to open the California coast to offshore wind development, ending a long-running stalemate with the Department of Defense that has been the biggest barrier to building wind power along the Pacific Coast.”<sup>6</sup> Developments of offshore wind projects are happening on the East Coast of the United States. In 2016, Rhode Island became home to the first offshore wind project in the nation with the successful installation of 30 MW Block Island Wind Farm. UC Berkeley Center for Labor Research and Education conducted a report called, *California Offshore Wind: Workforce Impacts and Grid Integration*, it stated, “The results from offshore wind planning and deployment in Europe and the U.S. East Coast show that offshore wind could be a high-road industry that not only helps the state achieve its climate policy goals for emissions reductions, but also spurs broad-based growth, creates quality jobs, and benefits communities.”<sup>7</sup>

Another renewable resource to consider is geothermal energy. The California Energy Commission states, “In 2020, geothermal energy in our state produced 11,345 gigawatt-hours (GWh) of electricity. Combined with another 700 GWh of imported geothermal power, geothermal energy produced 5.94 percent of California’s in-state generation portfolio. There are a total of 40 operating geothermal power plants in California with an installed capacity of 2,712 megawatts.”<sup>8</sup> Geothermal energy is heat within the earth, and is considered a renewable energy source due to heat being continuously produced inside the earth. Geothermal energy could be used for hot water, building heat, and electricity generation. The use of geothermal energy can be seen in power plants and heat pumps. The U.S. Energy Information Administration explains that “geothermal power plants use hydrothermal resources that have both water (hydro) and heat (thermal). Geothermal power plants require high-temperature (300°F to 700°F) hydrothermal resources that come from either dry steam wells or from hot water wells. People use these resources by drilling wells into the earth and then piping steam or hot water to the surface. The hot water or steam powers a turbine

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<sup>5</sup> Gill, Liz, et al. “2021 SB 100 Joint Agency Report - California Energy Commission.” *California Energy Commission, Energy Assessments* (200), Mar. 2021, [efiling.energy.ca.gov/EFiling/GetFile.aspx?tn=237167&DocumentContentId=70349](https://efiling.energy.ca.gov/EFiling/GetFile.aspx?tn=237167&DocumentContentId=70349).

<sup>6</sup> Sommer, Lauren. “Biden Administration Strikes a Deal to Bring Offshore Wind to California.” *NPR*, NPR, 25 May 2021, [www.npr.org/2021/05/25/1000210550/biden-administration-strikes-deal-to-bring-offshore-wind-to-california](https://www.npr.org/2021/05/25/1000210550/biden-administration-strikes-deal-to-bring-offshore-wind-to-california).

<sup>7</sup> Collier, Robert, Sanderson Hull, Oluwafemi Sawyerr, Shenshen Li, Manohar Mogadali, Dan Mullen, and Arne Olson. *California Offshore Wind: Workforce Impacts and Grid Integration*. Center for Labor Research and Education, University of California, Berkeley. September 2019. <http://laborcenter.berkeley.edu/offshore-wind-workforce-grid>.

<sup>8</sup> California Energy Commission. “California Geothermal Energy Statistics and Data, [https://ww2.energy.ca.gov/almanac/renewables\\_data/geothermal/index cms.php](https://ww2.energy.ca.gov/almanac/renewables_data/geothermal/index cms.php).

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that generates electricity.”<sup>9</sup> An example of geothermal power plants can be seen in Imperial Valley, with an anticipated completion date in 2023. The project consists of 10 geothermal power plants and its combined capacity will be around 345 megawatts. Geothermal heat pumps “use the earth’s constant temperature to heat and cool buildings. Geothermal heat pumps transfer heat from the ground (or water) into buildings during the winter and reverse the process in the summer.”<sup>10</sup> According to the U.S. Environmental Protection Agency (EPA), geothermal heat pumps are the most energy-efficient, environmentally clean, and cost-effective systems for heating and cooling buildings.<sup>11</sup> The types of buildings include, homes, office buildings, schools, and hospitals.

Including research into more alternative energy projects as part of the Regional Decarbonization Framework will increase the County of San Diego’s effort of shifting towards a green economy, prioritizing local high-road job creation, and addressing environmental injustice.

**LINKAGE TO THE COUNTY OF SAN DIEGO STRATEGIC PLAN**

This action to seek more information on the potential of other renewable energy sources supports the County of San Diego’s 2021-2026 Strategic Plan’s Sustainable Environments/Thriving Initiative by enhancing the quality of the environment by focusing on sustainability, environmental justice, and strategic planning.

Respectfully submitted,

CHAIR NATHAN FLETCHER  
Supervisor, Fourth District

JOEL ANDERSON  
Supervisor, Second District

**ATTACHMENT(S)**

N/A

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<sup>9</sup> “U.S. Energy Information Administration - EIA - Independent Statistics and Analysis.” *Geothermal Power Plants* - U.S. Energy Information Administration (EIA), <https://www.eia.gov/energyexplained/geothermal/geothermal-power-plants.php>.

<sup>10</sup> “U.S. Energy Information Administration - EIA - Independent Statistics and Analysis.” *Geothermal Heat Pumps* - U.S. Energy Information Administration (EIA), <https://www.eia.gov/energyexplained/geothermal/geothermal-heat-pumps.php>.

<sup>11</sup> “Geothermal Heating and Cooling Technologies.” EPA, Environmental Protection Agency, <https://www.epa.gov/rhc/geothermal-heating-and-cooling-technologies>.